NOTES FOR REMARKS BY

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to

A SEMINAR

on

WATER, NUTRITION AND DEMOGRAPHY

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Your Majesty, Honorable Ministers, Ambassadors, members of the Academy, ladies and gentlemen,

The World Bank issued its annual World Development Report in late August, shortly in advance of the annual meetings of the Bank and the International Monetary Fund, held this year in Toronto. A good deal of the narrative account of that report is dedicated to one of the essential ingredients of nutrition - agriculture: the supply side. The other side, of course, and it is wise to remember there is one, is consumption. In nutritional terms, the two sides are mutually dependent, and were identified as such almost half a century ago by a League of Nations Committee on Nutrition. That committee emphasized the need for governmental policies that recognized nutrition as a matter of primary importance, one that proposed activity in areas as distinct as education and income distribution.

It is not by coincidence that this Academy, in this country, has chosen to focus on this seminal yet elusive issue of nutrition, and to link it with those of water and demography. Morocco was cited just a year ago by the World Bank as having manifest "a clear-cut desire for equitable development." That desire is an essential pre-condition for any nutritional policy because in any country it is always the poorest people who are the most nutritionally deprived.

The report of the Brandt Commission stated that: "Poverty goes hand in hand with hunger." It continued: "No one can state the exact numbers in the world who experience hunger and malnutrition, but all estimates count them in hundreds of millions; millions who will either die from lack of food or have their physical development impaired. It is an intolerable situation. The idea of a community of nations has little meaning if that situation is allowed to continue, if hunger is regarded as a marginal problem which humanity can live with."

Any attack on malnutrition must be multi-faceted. And in each country that attack must be designed so as to meet the local circumstances. Yet, sadly, in many countries not even that design capacity is present. This lack was identified more than a decade ago by the Pearson Commission when it estimated that of all scientific and technological activity carried out worldwide, three per cent at most was undertaken within the developing countries. Even then, it was reported, much of the research in those countries was irrelevant, unnecessary, or even inconsistent with the needs of the countries themselves.

A sector of particular concern was agriculture. Little more than a decade ago almost no biological research was pursued in the food crops of the newly independent countries. The research undertaken -- some of it of a very high standard -- was

concentrated almost entirely in the cash or plantation crop sector: coffee, cocoa, bananas, sugar, groundnuts, rubber. Next to nothing, tragically, in the food, or consumption crops: cassava, chick-peas, quinoa, plantain, etc. Indeed, any serious work on such tropical and sub-tropical staples as rice, sorghum and maize concentrated on circumstances pertinent to the soil and climatic conditions in Europe, North America or Japan, not those in the south.

Responsibility for a portion of this absence of local competence lies with the basic principles of the colonial system. In the design of that system, decisions with respect to the location of universities or research stations, design of R&D programmes, employment of resources and the like, were generally taken with the broadest interests of empire -- or, later, multinational cooperations -- in mind. Some responsibility lies, too, with the model of development that the north, in innocence and good conscience, projects to the south. Capital-intensive, energy-inefficient, and often high-technology responses are offered as the norm. All too seldom is there a pause to reflect that few technologies are transferable without careful study and adoptive preparation.

It is in this respect that the deliberations of this Academy are of such value. For they emphasize that of the many factors

which permit a society to contribute to the welfare of its peoples and to enhance their standard of living, the ability to identify and solve problems is surely central. Neither the presence of resources nor the discipline of a population will suffice should there not be an indigenous competence to understand the elements of one's surroundings and to address the problems encountered. This competence is a research competence.

The acquisition of that competence is made all the more necessary by the fact that, today, many of the difficulties faced by the developing countries, and the destabilizing effects that are increasingly felt by all members of the international community, can only be overcome by the application of science and technology. That application, to be effective, must be responsive to local cultural and social sensitivites, be relevant to local problems, and bring with it self-sustaining solutions. These can be achieved only if an indigenous scientific capacity is present to identify problems, engage in research, design solutions, and determine policies. In the absence of that national capacity, of that native competence, economic disparities widen, environmental degradation worsens, political instability spreads, and human dignity suffers.

There is no single pattern of circumstance in the developing regions of the world, and therefore no single applicable

solution. Nevertheless, there are situations that seem to be tragically constant. And perhaps the most tragic of these is malnutrition.

Edouard Saouma, Director-General of the United Nations' Food and Agriculture Organization, states in his introduction to the Organization's 1980 food situation report that nutrition can be regarded as the leading edge of development. No nation can hope to achieve its full potential so long as a sizeable proportion of its population is undernourished. It is now well established that poor nutrition affects not just physical development, but intellectual development also. A child who has struggled to survive since infancy on a less-than-adequate diet has little hope of improving his or her own situation in adult life, let alone participating in any meaningful way in the development of a nation.

As many as 500 million people, virtually all of them in the developing world, suffer unceasingly from varying degrees of malnutrition. Yet, in 1981, the total world production of cereal grains was 1.6 billion metric tons -- enough to provide roughly one kilo of grain to every human being on earth for every day of the year. Enough, in fact, to provide more than the minimum daily intake of 2,340 calories recommended by the FAO and the World Health Organization.

On paper, at least, there is enough food to feed everyone, and many experts believe that our planet has the capacity now to feed double that number, as will be required before population growth ceases early in the next century. Population is still growing at the unprecedented rate of more than 70 million persons annually. In terms of cereals alone, that means an extra 30 million metric tons must be produced each year simply to maintain the present, far from adequate, nutrition levels.

During the first two Development Decades -- the 1960s and the 1970s -- the developing countries increased their food production by an average 3.2 percent per year, a remarkable achievement by any standard. That increase, however, was almost entirely erased by population growth. In some regions, production did not keep up with the growing numbers of people. On this continent, food production per capita has actually fallen by 2 percent over the past 20 years, while calorie intake has remained static at best.

While food scarcity can be described in general terms as a reflection of the still widening gap between the developed and the developing nations, it is in effect a local problem. A given area suffers a shortage of food at a given time...therefore people are malnourished. Hunger such as this is a function of poverty, not of scarcity.

Nowhere is this situation better illustrated than in the countries of the semi-arid tropics.

This vast climatic zone stretches around the globe and encompasses all or part of at least 50 countries on every continent, including this country. It is characterized by uncertain and inadequate rainfall, poor soils, and low-crop production. In thirteen of the seventeen of these countries on the African continent, the average diet of the majority of the people falls below the recommended daily requirement established by FAO and WHO. Perhaps the most vulnerable of this group are the countries that make up the region bordering the south and south-east of Morocco known as the Sahel. Events and prospects in that region are of considerable importance to Morocco.

Relatively few people in the nations of the North could have correctly located this region before the drought and famine of 1973. Then they saw on their television screens, in their newspapers and magazines, the instant awful reality of two hundred thousand dead, and a land devastated. Far more than the highly publicized United Nations global conferences that followed in successive years, the images and words that brought the Sahel drought into the living-rooms of the North served to awaken global public consciousness to the precariousness of the food-population balance in many regions of the world.

The Sahel is no longer in the headlines, but it is still with us. And the situation of its rural population is as precarious as ever, despite two years of good harvests. Last year, IDRC published a report of a meeting of scientists who, between them, had carried out more than 100 studies of the food and nutrition situation in the rural Sahel. Among their findings were the following:

- The people of the Sahel obtain from 70 to 80 percent of their food energy from cereals, primarily sorghum and millet, which do not have the protein and amino acid content required by children.

- Most children in the Sahel begin work in the fields and about the household at the age of seven or eight.

- 30 percent of the children are at least 20 percent below the weight-for-height ratio established as the norm by WHO.

- Deficiencies in calcium and riboflavin caused by the lack of animal protein in the diet are common, particularly among women and children.

- Pregnant and lactating women were receiving roughly 1000 calories per day less than the minimum recommended intake.

- The infant mortality rate in the Sahel of between 150 and 200 deaths per thousand is three times higher than the figure of 61 per thousand for Africa as a whole and 15 to 28 times higher than that for the developed world, which is calculated at somewhere between 7 and 15 per thousand.

These scientists produced a long list of recommendations for actions that would bring about an improvement in the nutritional status of the rural people. Their suggestions are practical ones that, for the most part, can also be applied to many other of the world's regions.

They recommend, for instance, that governments encourage subsistence agriculture, particularly cereals and complementary legumes that will provide a better balanced diet.

They suggest improvements to post-harvest systems to reduce food losses during processing and storage.

They call for the provision of village woodlots and better water supplies to reduce the amount of time and labour women must put into obtaining these daily essentials.

They recommend that governments spend more on research -- to stabilize yields and improve the quality of staple crops, and to

improve upon traditional farming systems better to integrate crops, trees and livestock.

And they suggest much more research is needed on specific nutrition-related health problems in the Sahelian region.

This type of approach to so complex a situation in many ways typifies IDRC's style of operation. The Centre has always been most conscious of the fact that no single agency, no matter how vast its rerources (and ours are far from vast), can possibly solve all the problems of the developing world. Thus, rather than dissipate scarce resources by trying to deal with a wide range of problems, IDRC chooses to maintain a relatively narrow focus, and to support research designed to tackle specific problems identified by the developing countries themselves as being of the highest priority. Because of this, IDRC's agriculture, food and nutrition sciences program has concentrated most of its research support in the semi-arid tropics, attempting to increase the availability of basic foodstuffs.

Among the most important of these food staples throughout much of Africa and the Middle East, and parts of Asia and Latin America, are the food legumes, such as cowpeas and faba beans. Rich in protein and containing several of the essential amino acids, the food legumes have been dubbed by nutritionists "the

poor man's meat". Traditionally, legume yields are low, and, precisely because they are the food of the poor, and not a high-priced cash crop, they have tended to be neglected by agricultural science. One organization that is trying to make up for that past neglect is ICARDA, the International Centre for Agricultural Research in the Dry Areas, based at Aleppo in Syria, and established in 1975 with the assistance of IDRC. There, scientists are working to help food legumes achieve full yield potential, to build an informal network of strong national legume research programs, and to train legume breeders and agronomists who will provide the basis for a continuing program of legume research that will help to increase production in the region.

The effects of malnutrition are often subtle and not always easy to see. Even moderate malnutrition, for example, may make a child much more susceptible to disease and infection, and less able to cope with illness when it strikes. A child who dies of measles may do so simply because it was too weakened by lack of proper feeding to be able to resist the disease or its complications. More than 100 million children below the age of five are malnourished -- 50 percent of them will die before they reach their sixth year. Many of these deaths will be the result of preventable diseases, and many of the dead will be children who contracted these diseases despite having been immunized against them.

The reason for this anomaly is that malnutrition reduces the body's immunocompetence - its ability to make full use of the vaccine. A good deal more research is needed to understand at just what point this happens, why it happens, and how. In West Africa, IDRC's health sciences program is supporting research to study this phenomenon in young children and to develop a more precise understanding of the relationship between malnutrition and immunocompetence. The information gained from this study will be of major importance to the health services of many developing countries which face similar problems of disease and malnutrition, and to the 40 million children in those countries who receive vaccinations each year.

Such information, however, will be useless unless it is widely disseminated to the right people...those who are in a position to make use of it. IDRC's information sciences program supports research to improve the flow of information both for and about development. In Senegal, it is helping to establish a documentation centre on food and nutrition that will be a source of data on exactly the kind of research projects I have described. This documentation centre, based in Dakar, will be the first of its kind to meet the needs of African scientists in the nutrition field. The long-term goal of this project is the establishment of a specialized information service to support the work of researchers throughout Africa, to enable them to make

better use of scarce resources, and ultimately to help reduce the deadly toll taken every day of the year by malnutrition.

These are just a few examples of the projects that IDRC supports worldwide in the field of food and nutrition. The Centre was created by the Canadian Parliament in 1970 as a response to a demonstrated developing country need. It is an organization independent of the Government of Canada -- though funded entirely by Parliament -- with the object of stimulating and supporting research for the benefit of developing countries. Building a strong local base for future research is an important objective of most Centre-supported projects. To this end, research projects attracting IDRC support are those that are identified, designed, conducted, and managed by developing country scientists. The great majority of these projects are aimed at improving the quality of life in the rural areas where three-quarters of the population lives, yet generally are the last to benefit from the advances of science and technology.

The Centre conducts work and pursues policies set by an international Board of Governors which has attracted to it over the years persons of outstanding scientific merit and developmental experience. Past boards have consisted of such well-known names as Victor Urquidi of Mexico, Soedjatmoko of Indonesia, Barbara Ward from Britain, and the Nobel Prize Winner

Theodore Schultz of the United States. The present Board includes Allison Ayida of Nigeria, Pierre Bauchet, recently President of the University of Paris Number One, Hadj Mohktar Louhibi of Algeria, Gelia Castillo of the Philippines, and Felipe Herrera of Chile, past President of the Inter-American Development Bank.

IDRC functions in a decentralized fashion, through regional offices (largely directed by developing country scientists) located in Cairo, Dakar, Bogota, Singapore, and Nairobi, and through two liaison offices located in Paris and New York. IDRC operates in cooperation wherever possible with the World Bank, the United Nations' specialized agencies, private foundations, regional organizations and national governments. In the course of this week, I will be more than pleased to discuss in detail, with anyone who requests, the way in which IDRC responds to the research requirements of developing countries.

Your Majesty, the North, in particular Europe, has had good reason to be grateful to Morocco. The interplay between Islam and Christianity in Spain during the long Moorish presence in that country is said to have been a principal source of Europe's 12th-century renaissance. It was largely through Moorish scholars writing in Arabic that classical Greek learning in science, medicine and philosophy was transmitted to medieval European scholars -- leading, of course, to the information that

is now being transmitted back to much of the South by nations of the North. And it was through Moorish poets that the individualism and philosophic idealisms of the Romantic tradition were first encountered in Europe.

One of those 12th-century Moroccan scholars was the philosopher and court physician at Marrakech, Ibn Rushd. Known in Europe as Averroes, he wrote original works on astronomy, medicine and jurisprudence, and is probably best known for his commentaries on Aristotle which had an important influence on medieval Christian scholasticism. Ibn Rushd also posited the existence of two kinds of truth -- one literal and derived from simple faith, the other arrived at by reason.

During the next few days, we here at l'Academie will, in a way, be very much concerned with the two truths of Ibn Rushd. The truth arrived at by reason will perhaps be easier to realize as we discuss and debate the problems of the developing world -- that truth tells us that the development of a South strong in economy, with water and food for all, is also the way to a strong North.

Much more difficult to achieve, however, will be the other truth -- that derived from the faith that the industrialized nations of the North will eventually act to the best of their

ability to fully implement truth number one. But at least this second truth is not one that has to be waited for -- it is a truth that can be actively sought after and vigorously fought for...as we are doing in our deliberations here this week.

Thank you.